

I am familiar with ProNet's request in this petition for Rulemaking to provide permanent spectrum in the 216-220 MHz band for ETS, and to authorize ETS to operate under the Business Radio Service rules and the FBI in Atlanta, Georgia is fully in support of this request. The FBI in Atlanta, Georgia, supports the grant of a Pioneer Preference (and Rulemaking) to ProNet because:

a. This law enforcement tool has proven to be very successful in removing violent criminals (those engaged in bank robbery activities) from the streets.

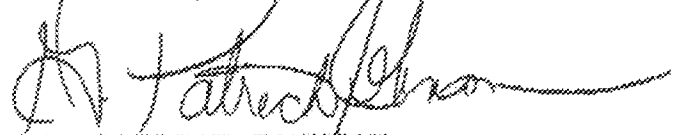
b. Currently the Atlanta Office of the FBI has no data available inasmuch as the ProNet system has not been installed in the Atlanta area as of this writing; however, in conversation with my contemporaries in Phoenix, San Francisco, and other cities, it is obvious that this system is instrumental in a vast increase of apprehension and conviction rates for those individuals engaged in bank robbery activities.

c. Electronic Tracking System as described by Mike Markwood and installed in other cities, is a unique and innovative technology that does not currently exist. Currently the method of attempting to track bank robbers subsequent to the bank robbery is a tear gas and dye pack that explodes some few seconds after it is removed from the bank property. This is a valuable tool; however, it loses its effectiveness within fifteen to twenty seconds, therefore, if a policeman is not within visual sight of the explosion, it does little or no good, other than to dye the money which is then subsequently attempted to be traced. The attempts to trace dyed money, although sometimes successful, are very often fruitless due to the many hands the money may have passed through prior to the time it is returned or reported to the FBI.

d. Finally, I would like to point out that bank robberies in the Atlanta, Georgia, area have more than doubled within the past year. Within the past year we have only been utilizing the technology of a dye pack system which has obviously have proven effective. The proper method to solve multiple bank robberies by the same individual is through the Electronic

Tracking System. It is felt that an individual who currently commits between five and fifteen robberies would be apprehended shortly after the first robbery, thus reducing greatly the number of offenses in the potential for injury to innocent individuals.

Sincerely,

A handwritten signature in dark ink, appearing to read "G. Patrick Johnson", with a long horizontal flourish extending to the right.

G. PATRICK JOHNSON
Supervisor, Violent Crimes
Major Offender Squad
Atlanta, Georgia



U.S. Department of Justice

Federal Bureau of Investigation

In Reply, Please Refer to
File No. 91-PD-31967

Post Office Box 709
Portland, Oregon 97207
February 27, 1992

Federal Communications Commission
Room 222
1919 M Street, N.W.
Washington, D.C. 20036

Attention: Donna Searcy
Office of the Secretary

Re: In the Matter of Par 90 of the
Commission's Rules to Provide for the
Use of the 220-222 MHz Band by the
Private Land Mobile Radio Services.

PR DK. NO. 89-552

Dear Sirs,

The Federal Bureau of Investigation (FBI), Portland, Oregon, has been contacted by Electronic Systems Incorporated, (ETSI), based in Dallas, Texas, requesting FBI support for ETSI's application for additional frequency spectrum.

This communication is not in support of ETSI or any other individual company, per se, but instead for whatever improvements or expansions might be made in electronic currency tracking systems currently marketed by ETSI under the name ProNet Tracking Systems.

The Portland Office of the FBI is cognizant that this electronic tracking system has been utilized in cities across the United States, and has resulted in a dramatic increase in the number of apprehensions of bank robbers wherein currency with the tracking device were taken in the robberies.

The State of Oregon continues to rank among the leaders nationally in the incidence of bank robbery, the majority of which have occurred in the Portland Metropolitan area. The Portland FBI, working closely with the Portland Police Bureau (PPB), played a major role in the establishment of an electronic tracking system, and since its inception in 1990 has been directly responsible for the apprehension of several individuals responsible for Portland area bank robberies.

FEDERAL COMMUNICATIONS COMMISSION

The Portland FBI supports ETSI's application for frequency band expansion insofar as such expansion would facilitate expanded use of the currency tracking system in robbery and/or extortion applications.

Sincerely,



ROBIN L. MONTGOMERY
Special Agent in Charge

✓cc: Electronic Tracking Systems Inc.
600 Data Drive, Suite 100
Plano, Texas 75075

C

ProNet TRACKING SYSTEM SPECIFICATIONS

TRANSMITTER

<u>PARAMETER</u>	<u>TYPE/VALUE</u>	<u>UNITS</u>
RF Frequency Range	200-400 (VHF, UHF)	MHz
RF Stability	+/- .0005% (UHF) +/- .001% (VHF)	
Modulation Bandwidth Spurs & Harmonics	> 30 dB @ 40 kHz from carrier > 30 dB below assigned carrier	
Modulation Type Rate	50% AM modulated Square Wave 90 Hz	
RF Power Output	100	mW, Peak
Emission Designators	80KOPON, 80KOAON, 80KOP2D, 80KOA2D	

RECEIVER

Sensitivity	-134	dBm
Bandwidth	+/- 4	KHz
RF Stability	+/- .0005%	
RF Selectivity	+/- 1	MHz
Adjacent Channel Selectivity	30 KHz Ch.	
Dynamic Range	100	dB

D

Electronic Tracking Service ("ETS"). A low-power radiolocation service assisting law enforcement agencies, security organizations, and commercial entities in tracking the location of property and individuals.

E

Channel 13 TV Interference Test

<u>Type Set</u>	<u>Year</u>	<u>Range for No Interference</u>
JVC - 19"	92	< 1 FT
JVC - 27"	92	< 3 FT
DAYTRON - 19"	80	< 27 FT
MAGNAVOX - 19"	85	< 20 FT
ZENTH - 19"	85	< 25 FT
PANASONIC - 12"	85	< 25 FT
BLK & WHT - 10"	80	< 30 FT

The above test were conducted with a 100 mW, 216.8 MHz PTS Beacon with external rabbit ear antennas on the TV sets which were tuned for weak signal reception of Ch 13. In all cases, the range is the distance from the TV at which no observable interference occurred.

These measurements were made in Dallas at nominal ranges of 40 miles from the Ch 13 TV tower.

In bench tests, the effective power output of the Tag Signal which causes noticeable video interference to a TV set at 214 MHz is -75 dBm. For a typical TV sensitivity of -95 dBm, the total pathloss required to prevent this type of interference is 20 dB. This correlates to approximately one wavelength away from the TV which would be 4.5 feet.

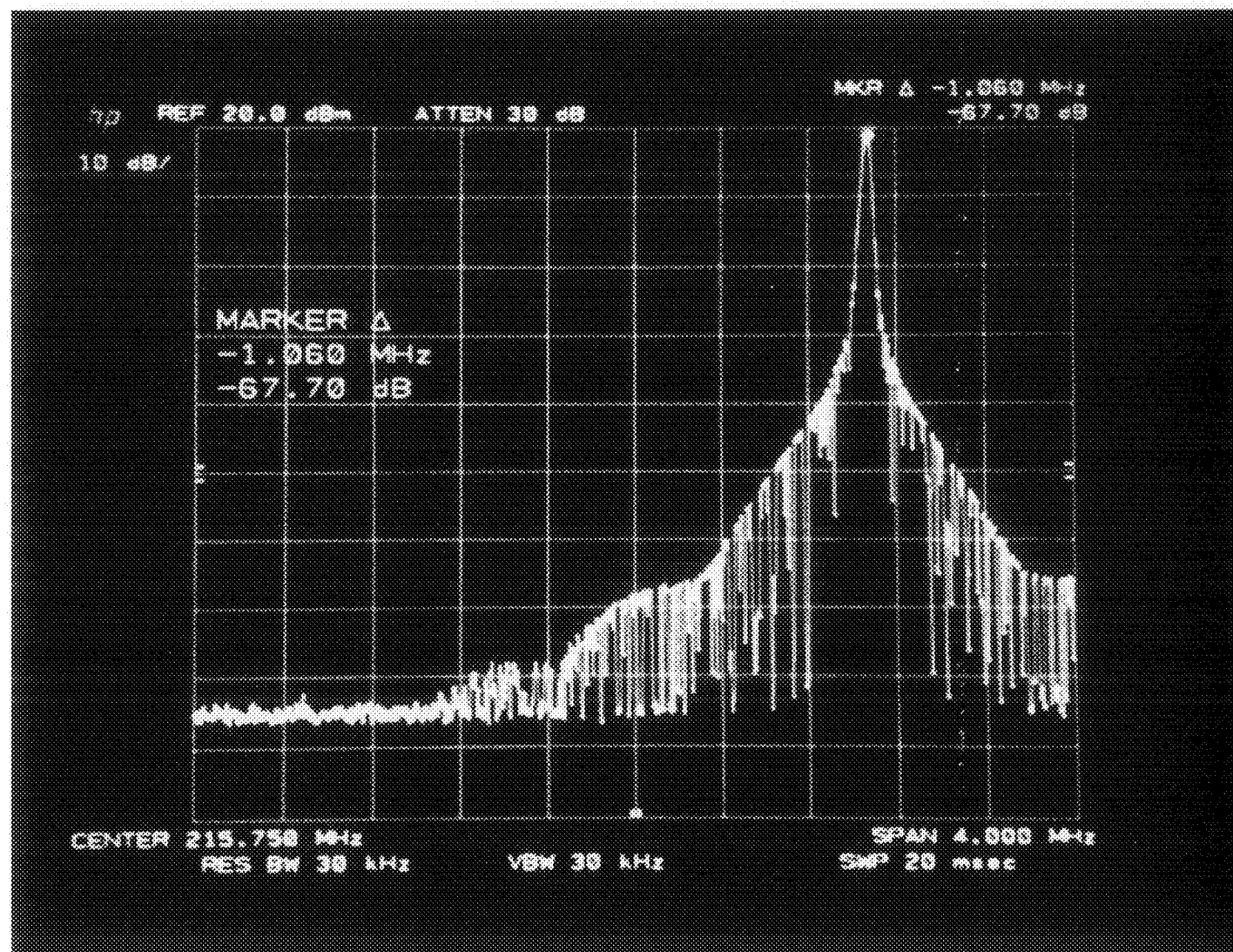
The interference caused by the peak power from a PTS beacon is shown in the PTS Tag Spectrum (see figure 2). The interference generated by the tag is -48 dBm at the sound carrier frequency. The required path loss to prevent interference would be the difference between a typical TV's receiver sensitivity (-95dBm) and the interfering signal level of -48 dBm. Therefore, the isolation or path loss needed to prevent interference is 47 dB. The PTS beacon has a -10 dB gain antenna which means that we would need an additional path loss of 37 dB. To achieve the additional 37 dB of path loss, a distance of 25 feet is required between the beacon and the TV receiver.

Summary Table Based On Peak Spectrum Levels (30 KHz BW)

Interference Level at Ch-13 Sound Carrier	=	-48 dBm
Typical TV Receiver Sensitivity	=	<u>-95 dBm</u>
Required Path Loss For No Interference	=	-47 dB
Less PTS Tag Antenna Loss	=	<u>-10 dB</u>
Adjusted Path Loss For No Interference	=	-37 dB
Equivlent Distance (Wavelengths/Feet)	=	5.6/25 ft

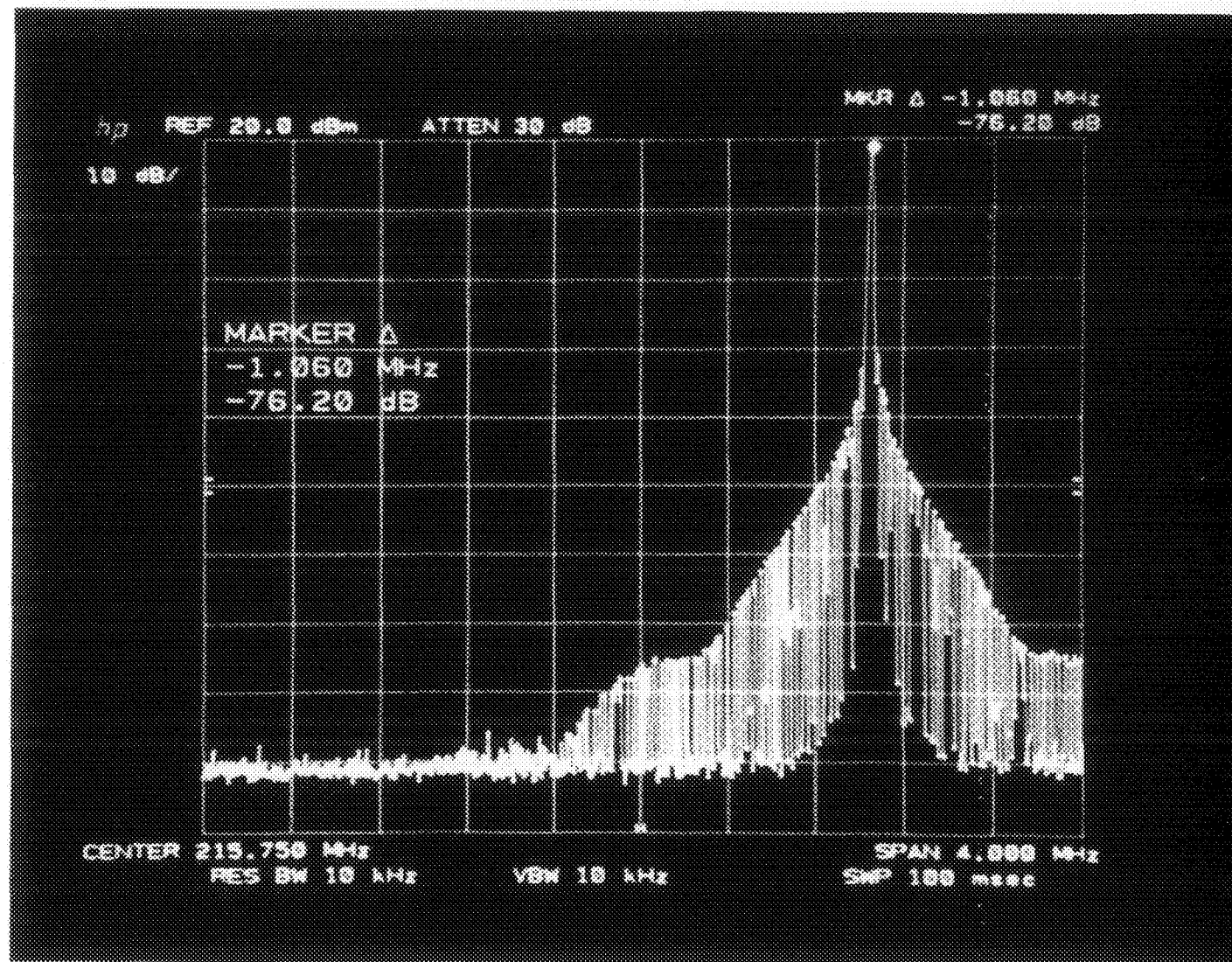
Average power levels are typically 20 db below peak levels

PTS TAG SPECTRUM (216.8 MHz, 90 Hz MODULATION)
PEAK LEVELS MEASURED IN A 30 kHz BAND WIDTH



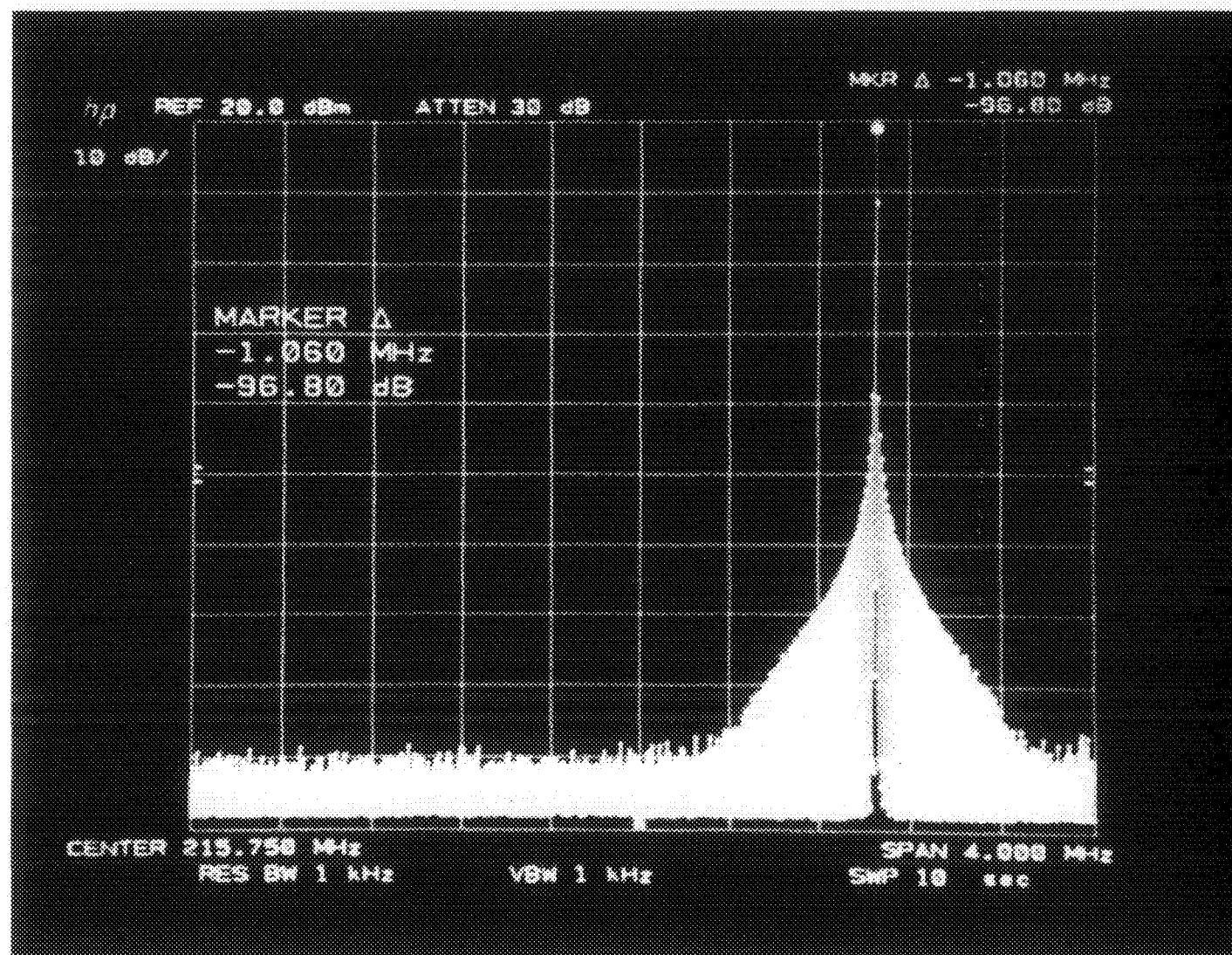
CENTER FREQUENCY = CH-13 SOUND CARRIER
PEAK LEVEL = 67.7 DBC

PTS TAG SPECTRUM (216.8 MHz, 90 Hz MODULATION)
PEAK LEVELS MEASURED IN A 10 kHz BAND WIDTH



CENTER FREQUENCY = CH-13 SOUND CARRIER
PEAK LEVEL = 76.2 DBC

PTS TAG SPECTRUM (216.8 MHz, 90 Hz MODULATION)
PEAK LEVELS MEASURED IN A 1 kHz BAND WIDTH



CENTER FREQUENCY = CH-13 SOUND CARRIER
PEAK LEVEL = 96.8 DBC

Channel 13 De-Sense Levels For Ground Trackers (*)

(De-Sense Level IN db) / [% of Available Tracking Range]

	<i>Distance from Ch-13 (Miles)</i>		
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<u>PTS Frequency</u>	<u>0 -> 5</u>	<u>5 -> 10</u>	<u>-> 10</u>
219.96 MHz	(10) / [72%]	(0) / [100%]	(0) / [100%]
216.80 MHz	(12) / [64%]	(0) / [100%]	(0) / [100%]
216.40 MHz	(15) / [58%]	(1) / [99%]	(0) / [100%]

(*) Based on a nominal receiver sensitivity of -130 dBm

Channel 13 De-Sense Levels For Remotes & Helicopters (*)

(De-Sense Level in db) / [% of Available Tracking Range]

	<i>Distance from Ch-13 (Miles)</i>		
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<u>PTS Frequency</u>	<u>0 -> 5</u>	<u>5 -> 10</u>	<u>-> 10</u>
219.96 MHz	(17) / [52%]	(11) / [70%]	(5) / [85%]
216.80 MHz	(20) / [48%]	(14) / [62%]	(8) / [78%]
216.40 MHz	(21) / [45%]	(14) / [62%]	(9) / [75%]

(*) Based on a nominal receiver sensitivity of -130 dBm

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing Request to Modify Petition for Rule Making will be delivered by hand to the following parties on the 27th day of October, 1993:

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Deborah Traughber

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October 26, 1993